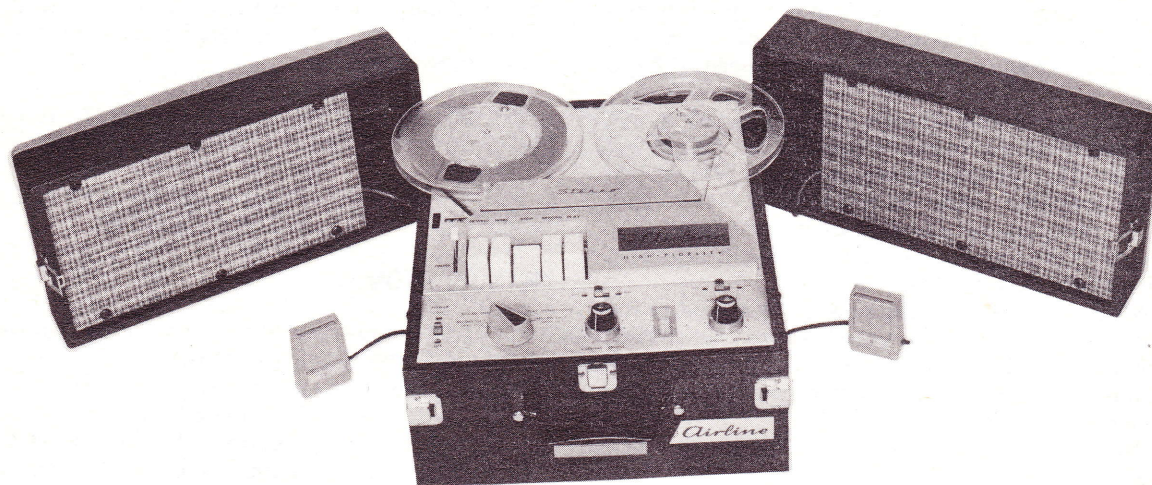


AIRLINE
MODEL GPL-3822A



AIRLINE
MODEL GPL-3822A

GENERAL INFORMATION

The Model GPL-3822A will record and play 4-track stereo tapes and up to four monophonic tracks on one reel of tape. It will play 2-track stereo tapes.

The Ad-A-Sound feature permits recording new parts to previously recorded tapes.

The unit will record or play at either 3 3/4 ips or 7 1/2 ips.

The recorder must be operated from a 105-120 volt AC, 60 Cycle source only.

Supplied By:

Montgomery Ward & Company
619 Chicago Avenue
Chicago 7, Illinois

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement CQ543

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Speed Control

Make sure power is on. With tape threaded, speed control switch can be moved to the left for 7 1/2" per second or, to the right for 3 3/4" per second in any push-button position. Make sure the switch "CLICKS" to insure proper engagement. The action that takes place during a speed change is as follows:

Capstan drive belt (41) rides between the forked end of speed change fork (52). When the Speed Change button is moved to the left, the forked end of speed change fork (52) pivots upward. This lifts capstan drive belt (41) high enough to be picked up by an "ear" on motor pulley (40). The "ear", in turn, places capstan drive belt (41) in the middle pulley of motor pulley assembly (40), resulting in a tape speed of 7 1/2 ips.

When the Speed Change button is moved to the right, the forked end of speed change fork (52) pivots downward. This lowers capstan drive belt (41) enough to contact one of the "ears" on motor pulley (40). This "ear", in turn, places capstan drive belt (41) in the bottom pulley of motor pulley assembly (40), resulting in a tape speed of 3 3/4 ips.

When the Speed Change button is moved to the left for the 7 1/2 ips tape speed, speed change fork (52) contacts and closes equalizer switch (56) in order to obtain the correct equalization for the 7 1/2 ips tape speed.

Push Button

Mechanical and electrical functions relating to the Play and Record operations are controlled by the push buttons. In addition to starting or stopping the tape, the Play, Record, and Stop push buttons switch the electrical circuits in or out when the buttons are depressed. The mechanical functions for wind and rewind are controlled by the Wind and Rewind push buttons. The following mechanical action takes place as each push button is depressed.

NOTE: This sequence of push-button operation originates with the Stop button depressed.

Play Button

1. Depressing the Play button releases the Stop button. When the Stop button is released, tension on brake spring (11) is relieved, allowing brake release spring (10) to pull brake rollers (3) away from reel rests (14) and (18). Spring (94) is released allowing the actuator arm on cutoff switch (91) to rest against tape. If tape breaks or spills, the actuator arm will fall into stop (81) and actuate cutoff switch (91) to stop drive mechanism.

2. Pressure roller spring (61) pulls head mounting plate (62) forward, pressing heads against tape and pressure pads, also pressing pressure roller (137) against tape and capstan.

3. Tension applied to take-up spring (97) pivots take-up bracket (100). Take-up bracket (100), in turn, moves take-up clutch assembly (70) against take-up reel rest (18) to provide tape take-up.

4. Muting switch actuator (127) is released allowing muting switch (112) to open.

Record Button, Pause Control Lever

1. Depressing the Record button (the Pause control lever must be held in the forward position to allow the Record button to be depressed) releases the Stop button. When the Stop button is released, tension on brake spring (11) is relieved, allowing brake release spring (10) to pull brake rollers (3) away from reel rests (14 and 18). Spring (94) is released allowing the actuator arm on cutoff switch (91) to rest against tape. If tape breaks or spills, the actuator arm will fall into stop (81) and actuate cutoff switch (91) to stop drive mechanism.

2. Muting switch actuator (127) is released allowing muting switch (112) to open.

3. Plunger on depressed Record button moves record switch (113) to Record position.

WIND BUTTON

1. Depressing the Wind button releases the Stop button. When the Stop button is released, tension on brake spring (11) is relieved, allowing brake release spring (10) to pull brake rollers (3) away from reel rests (14 and 18). Spring (94) is released allowing the actuator arm on cutoff switch (91) to rest against tape. If tape breaks, spills or ends, the actuator arm will fall into stop (81) and actuate cutoff switch (91) to stop drive mechanism.

2. Plunger on depressed Wind button pivots muting switch actuator (127) to switch muting switch (112) to muting position.

3. Tension applied to fast forward spring (36) pivots rocker arm (34). Rocker arm (34), in turn, pivots traverse link (31) and traverse pulley (28) toward take-up reel rest (18). Fast traverse belt (32), which drives traverse pulley (28) from motor pulley (40), contacts take-up reel rest (18) to wind the tape on the take-up reel at a rapid rate.

Rewind Button

1. Depressing the Rewind button releases the Stop button. When the Stop button is released, tension on brake spring (11) is relieved, allowing brake release spring (10) to pull brake rollers (3) away from reel rest (14 and 18). Spring (94) is released allowing the actuator arm on cutoff switch (91) to rest against tape. If tape breaks, spills or ends, the actuator arm will fall into stop (18) and actuate cutoff switch (91) to stop drive mechanism.

2. Plunger on depressed Rewind button pivots muting switch actuator (127) to switch muting switch (112) to muting position.

3. Tension applied to rewind spring (35) pivots rocker arm (34). Rocker arm (34), in turn, pivots traverse link (31) and traverse pulley (28) toward rewind reel rest (14). Fast traverse belt (32) contacts

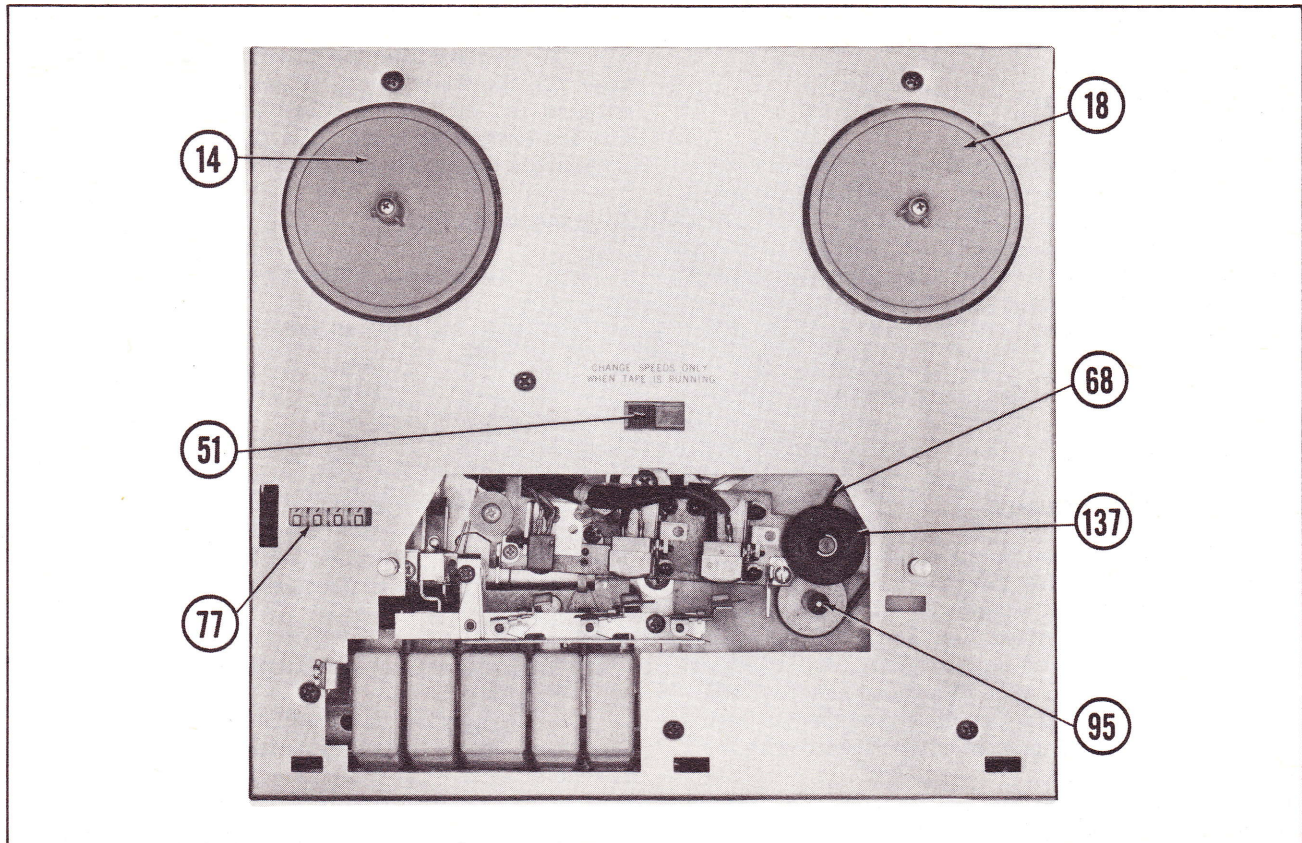


Figure 1. Top View Of Mechanism With Top Covers Removed.

rewind idler wheel (22), in turn, drives rewind reel rest (14) to wind tape on rewind reel at a rapid rate.

CH-1 and CH-2 Volume Controls (Center Knobs)

The Channel 1 and Channel 2 Volume controls (center knobs) are used to adjust recording level during recording and the sound level during playback for their respective channels. Turning the controls clockwise increases volume level, turning counterclockwise decreases level.

CH-1 and CH-2 Tone Controls (Outer Knobs)

The Channel 1 and Channel 2 Tone controls (outer knobs) vary the relative strength of bass and treble frequencies during playback and monitoring for their respective channels. The tone controls have no effect on the signal being recorded on the tape when recording.

Automatic Index Counter

Automatic index counter (77) provides a means for locating recorded material anywhere on the tape. Set the counter to zero at the beginning of a reel by rotating the Reset knob. Counter belt (15), which is connected to left-hand reel rest (14), drives the counter.

Cutoff Switch

Cutoff switch (91) is located to the left of the head assembly. The tape falls between the tape guide post (83) and the actuating arm of the cutoff switch (91). Thus, when the end of a reel of tape is reached, or if the tape should spill or break, the actuating arm of cutoff switch (91) moves into stop (81). This action opens cutoff switch (91) and stops the drive mechanism.

DISASSEMBLY INSTRUCTIONS

To Remove Access Interlock Plate from Bottom of Case

1. Remove six wood screws in Access Interlock.
2. Lift Access Interlock Plate away from bottom of cabinet to disconnect interlock.

To Remove Head Cover

1. Remove six screws from bottom of case.
2. Remove three screws from left side of case.
3. Remove three screws from right side of case.
4. Remove two screws from rear of case.

5. Set recorder on its side and carefully work mechanism out of case.

TO REMOVE HEAD COVER

To gain access to the head assembly, place both hands on the plastic head cover. Gently push the head cover toward the rear of the unit, at the same time, lifting slightly. To replace the head cover, insert the plastic key on the cover in the cutout provided on the top panel and turn downward until the head cover seats into the original position.

To Remove Top Cover

To remove the top (front) cover, first pry the knob off the Pause lever. Place a finger at the back corners (at the tape guides) of the cover and press forward toward the front. Lift the cover up and off. To replace the top cover, reverse the procedure.

To Remove Top Plate

1. Remove six machine screws in top plate.
2. Lift top plate up and off.

OPERATING INSTRUCTIONS

Tape Loading and Threading

Place an empty reel on the right-hand reel rest, making sure the three fins enter the reel slots. Place a full reel of standard "A" tape on the left-hand reel rest, with the shiny side of the tape facing the operator. Stretch tape in line with threading slot, and lower it into place. Attach end of tape to take-up reel and turn the reel by hand several times until the tape has been secured to the reel. Tape can only be loaded with the Stop button depressed.

Tuning on the Amplifier and Motor

Slide Power switch up to ON position to supply power to the amplifier and motor. Allow the amplifier to warm up for approximately thirty seconds before proceeding to record or playback.

Selecting Speeds

With Power switch ON and Stop button depressed or tape running in any push button position, the Speed Control button can be moved to the left for a tape speed of 7 1/2 ips or to the right for 3 3/4 ips.

Caution: Never change speed unless power is on and the Stop button is depressed or the tape is running in any push button position.

To Record with Microphone

1. If making a monophonic recording, plug microphone into Input CH-1 on left side of recorder. Plug one microphone into Input CH-1 and the other microphone into Input CH-2 if making a stereophonic recording.

2. Turn selector control to Record Stereo position.

3. Slide monitor switches 1 & 2 to OFF.

4. Set tape counter to zero or make note of counter reading.

5. Pull Pause control forward and depress Record button.

NOTE: The Record button cannot be depressed unless the Pause control is held in the forward position.

6. Adjust Volume control 1 for a monophonic recording. Adjust Volume controls 1 & 2 for a stereophonic recording. Adjust so that the indicator light or lights just close on the loudest peaks of the sound being recorded.

7. Release Pause control to start recording.

8. Recording will continue until Stop button is depressed, Pause control is pulled forward, tape ends or tape breaks.

To Record from Radio, TV, or Phonograph

Connect output of radio, TV, or phonograph through suitable patch cord or cords fitted with standard two circuit phone plug or plugs plugged into one or both Inputs (CH-1 and CH-2) as required.

Proceed with recording as described in Steps 2 through 8 of "To Record with Microphone."

To Record Four Monophonic Recordings on Tape

1. Connect source of signal to CH-1 input.

2. Place Selector control in Record CH-1 input.

3. Record until end of reel is reached, turn full reel over and place on left spindle.

4. Continue recording again using CH-1 input and Channel 1 Volume control.

5. When end of reel is again reached, turn full reel over and place on left spindle.

6. Turn Selector control to Record CH-2, connect input signal to CH-2 Input and use Channel 2 Volume control.

7. Record until end of reel is reached, turn full reel over and place on left spindle.

8. Record again using Channel 2 Volume control and CH-2 Input.

9. Use same procedure to play back but instead operate with Selector Control in Play positions.

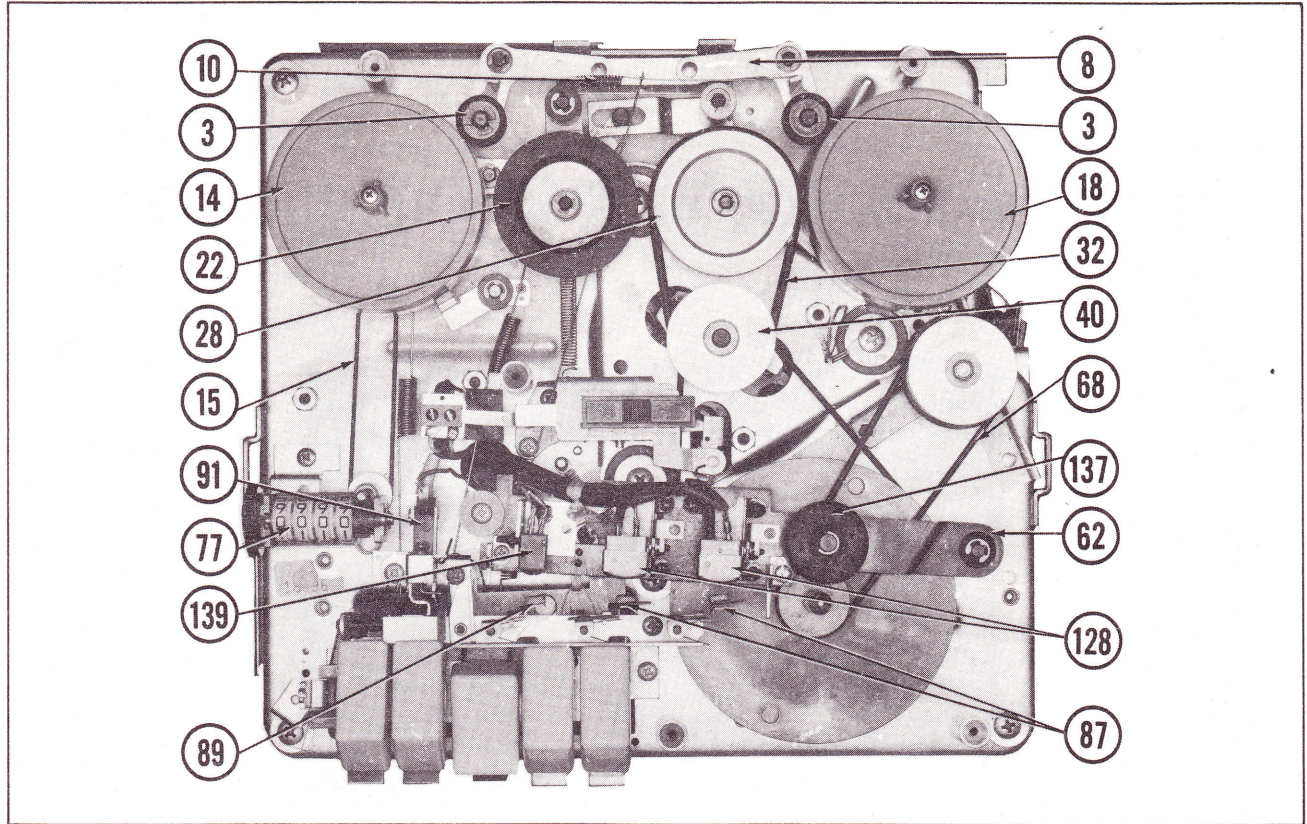


Figure 2. Top View Of Mechanism With Top Plate Removed.

To Make Ad-Asound Recordings

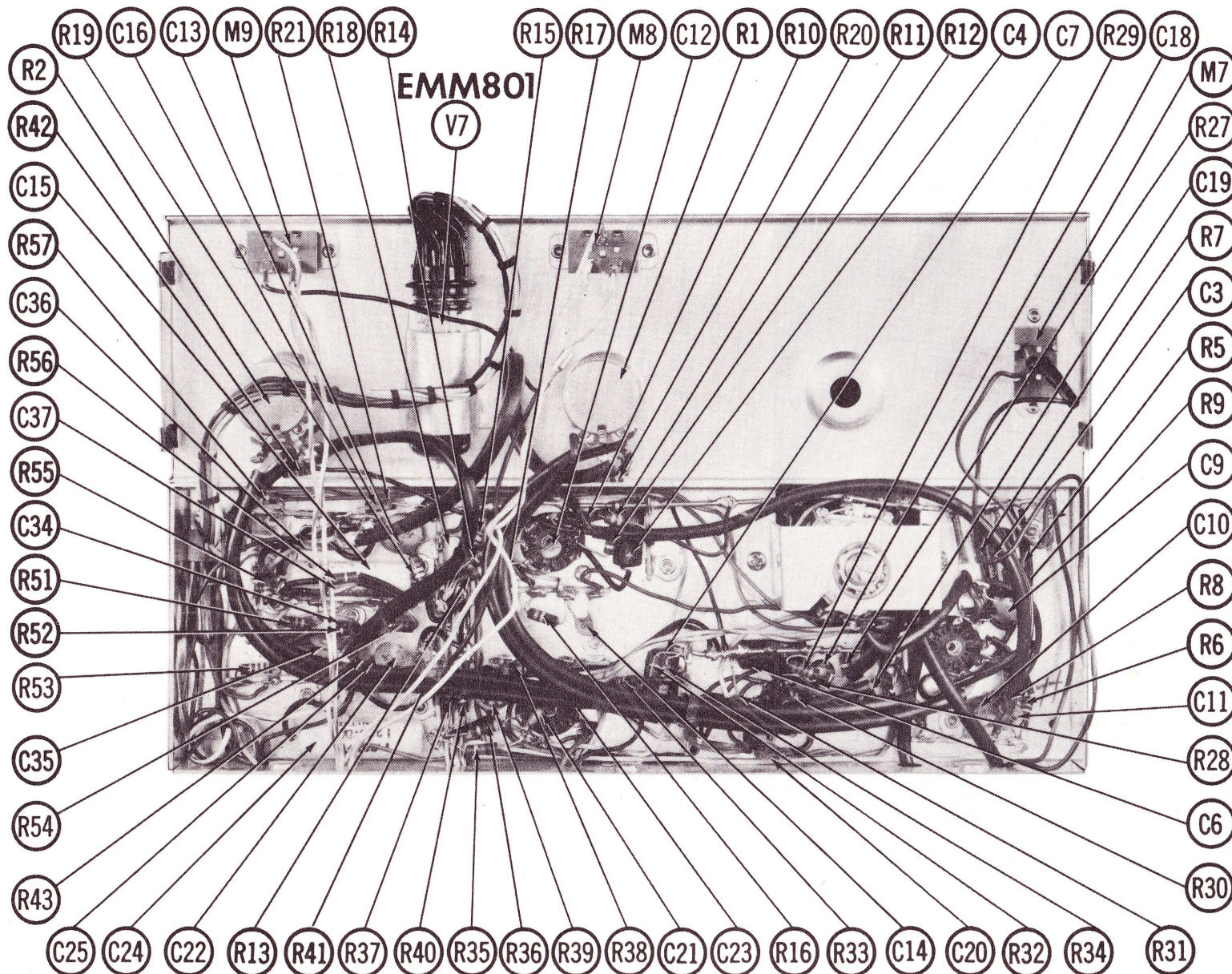
1. Connect sound source to Input CH-1.
2. Turn Selector control to Record CH-1.
3. Turn Channel 1 monitor switch OFF.
4. Slide Adasound switch to ON.
5. Set tape counter to 0000.
6. Proceed to record. Program is recorded on Channel 1 of tape.
7. Rewind tape to 0000.
8. Connect source of sound to be added to Input CH-2.
9. Turn Channel 2 monitor switch OFF and Channel 1 Monitor switch ON.
10. Turn selector control to Record CH-2.
11. Proceed to record. Sound to be added is recorded on Channel 2 of the tape.
12. Rewind tape to 0000.
13. To play, turn selector control to PLAY, STEREO/MONO.
14. Depress Play button. Adjust Tone and Volume controls for proper balance between Channel 1 and Channel 2.

To Play Stereo Recordings (4 & 2track)

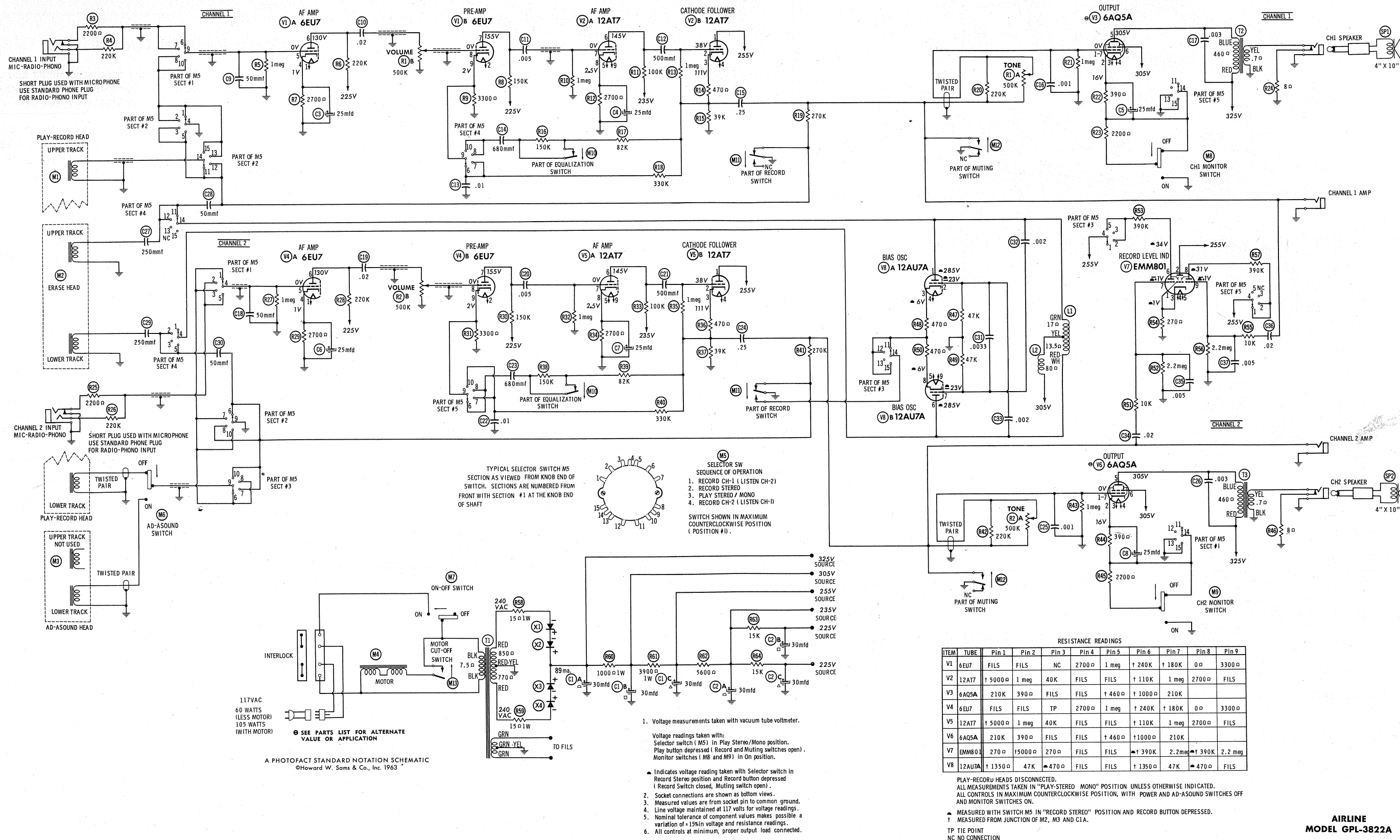
1. Place reel of recorded tape on left spindle and thread tape with take-up reel on right spindle.
2. Turn selector control to PLAY STEREO/MONO position.
3. Set speed control to speed of recorded tape.
4. Plug in speaker units and place them about four feet on each side of the recorder.
5. Depress Play button and adjust volume and tone controls 1 and 2 for best balance between speakers.

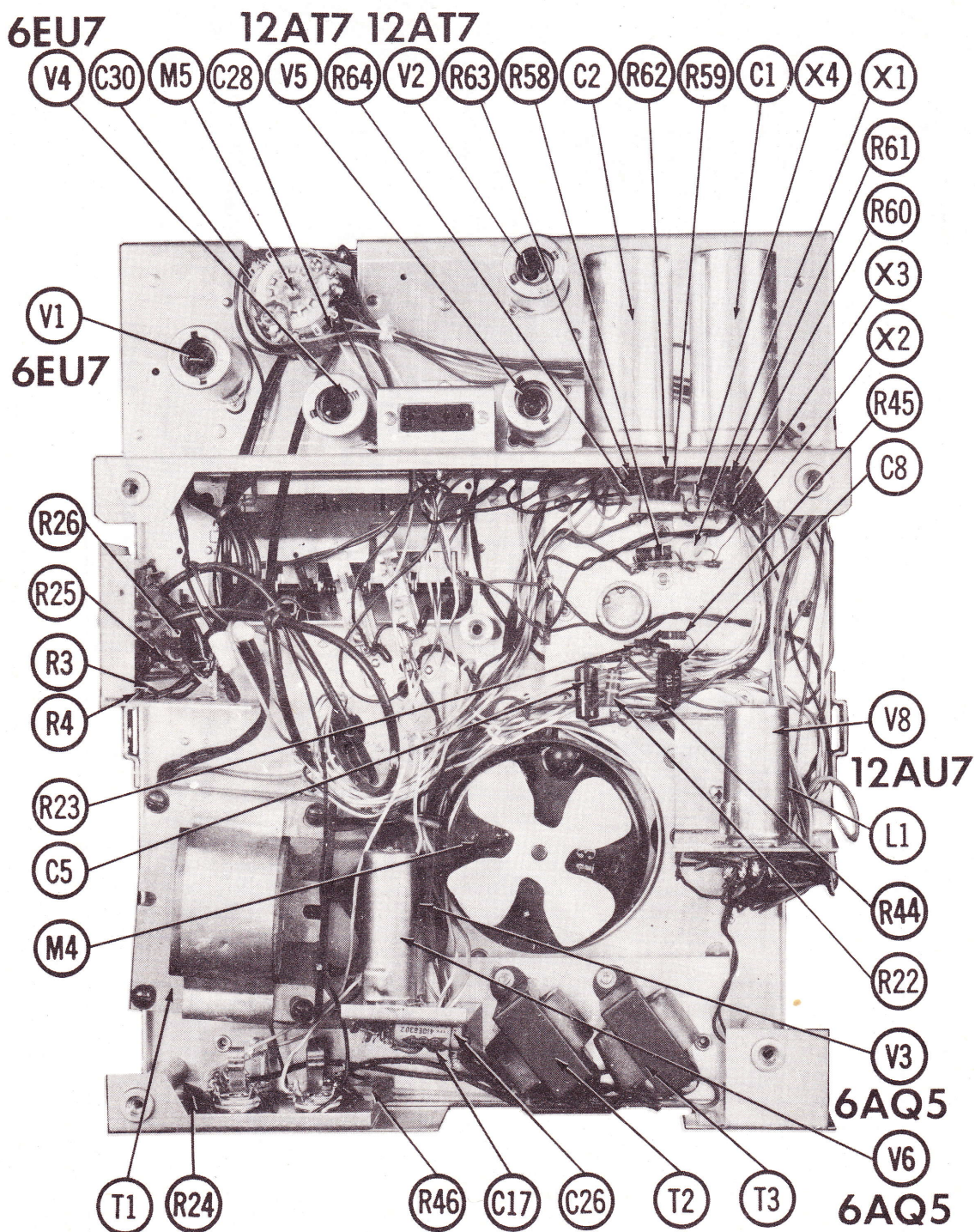
To Play Monophonic Tapes

1. Place reel of recorded tape on left spindle with take-up reel on right spindle and thread tape.
2. Plug in speaker units.
3. Turn selector control to PLAY STEREO/MONO position.
4. Turn speed control to speed of recorded tape.
5. Depress Play button.
6. Adjust volume and tone control 1 for desired listening level. Volume control 2 must be turned down as low as possible.

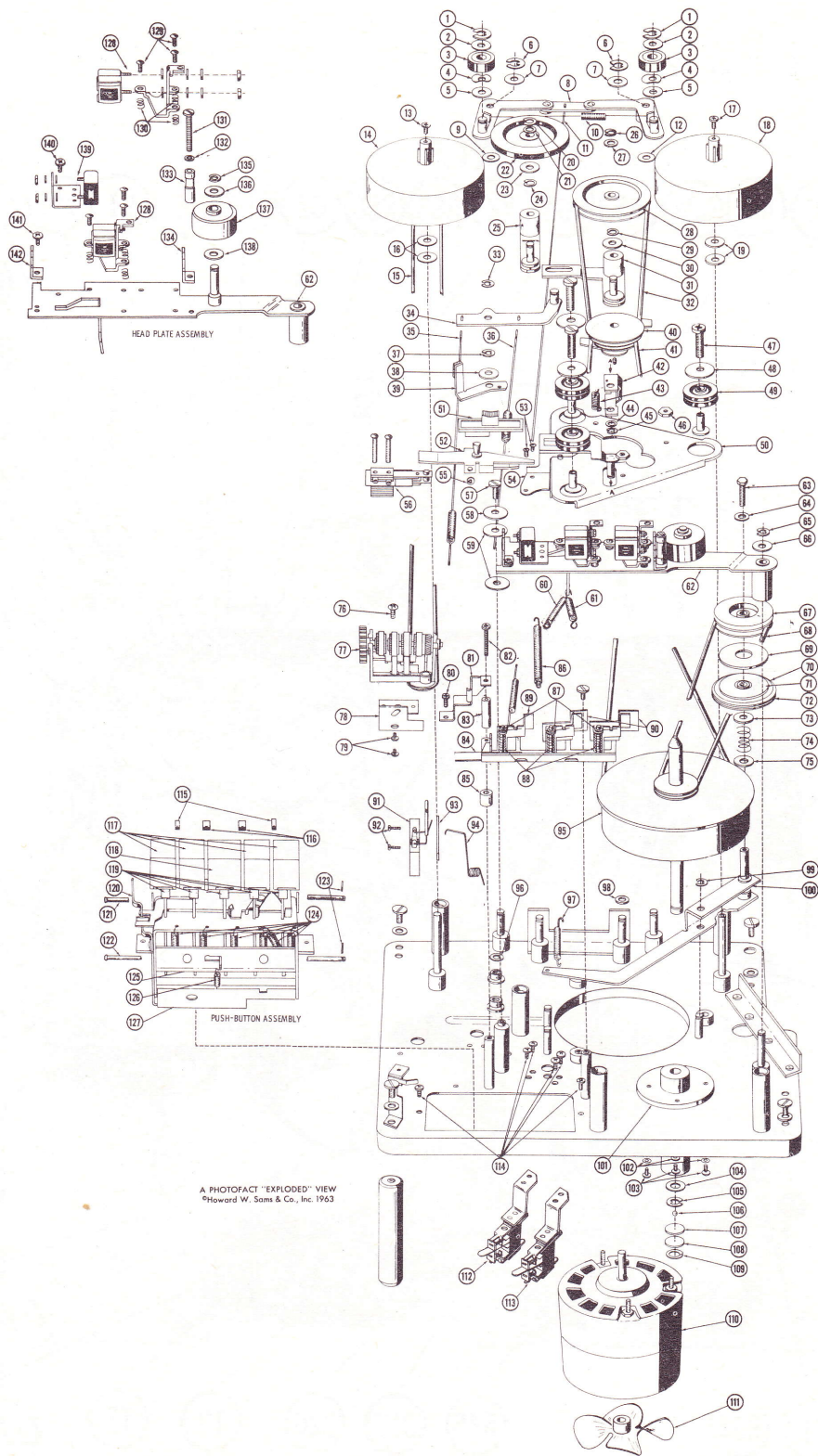


PREAMP CHASSIS AND CONTROL PANEL





CHASSIS — BOTTOM VIEW (SEE PAGE 15 FOR V8 CIRCUIT COMPONENTS)



A PHOTOFACT "EXPLODED" VIEW
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FIG. 3 EXPLODED VIEW

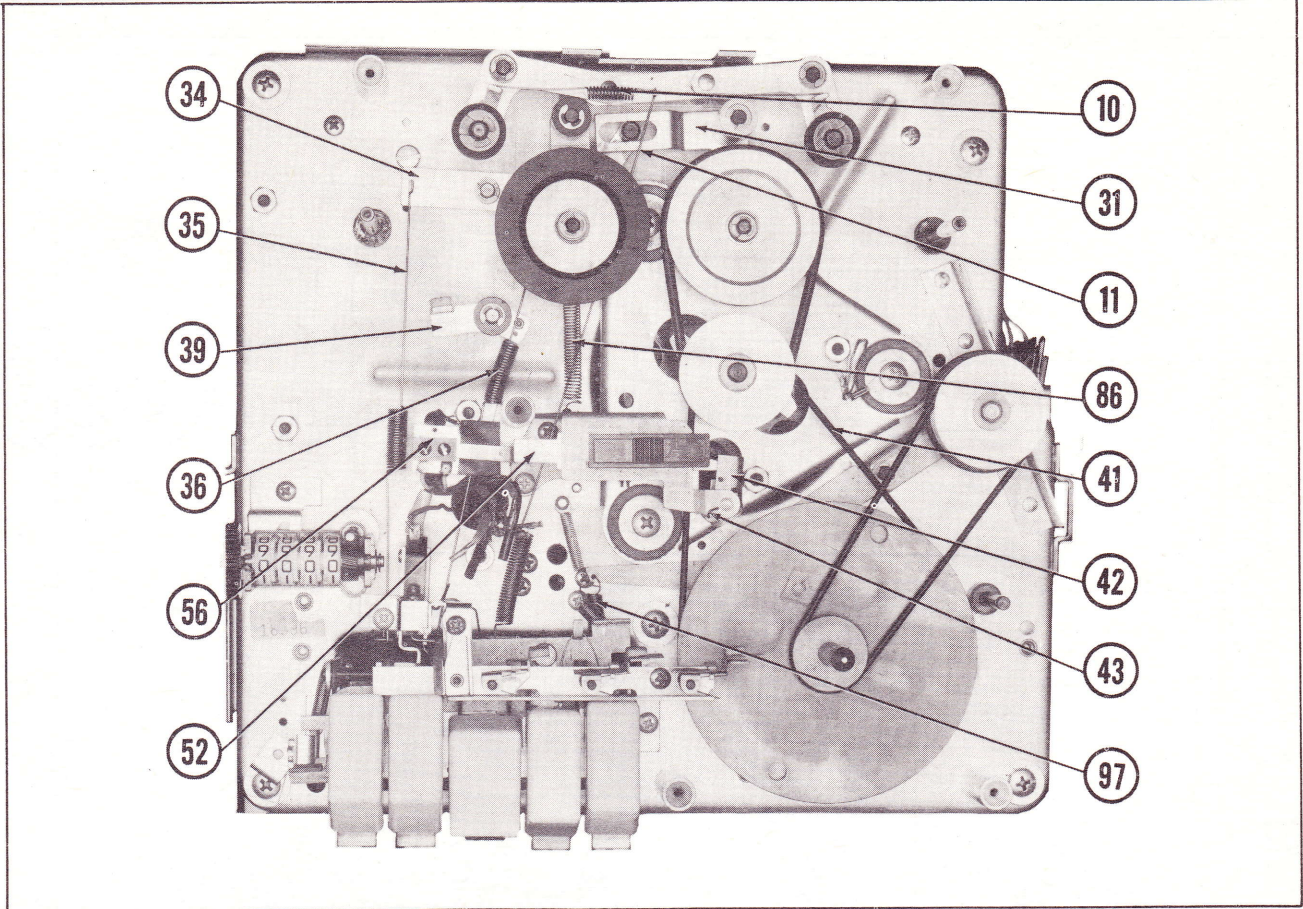


FIGURE 4 Top View Of Mechanism With Reel Rests And Head Plate Assembly Removed.

7. When through playing side 1, turn full reel over and place on left spindle. Thread tape and press Play button.

For playing four track Monophonic tapes see "To Record Four Monophonic Recordings on Tape."

ADJUSTMENTS

Take-Up Adjustment

The rpm of the take-up reel changes considerable as the diameter of the reel of tape increases. Therefore, a slipping clutch is used to drive the take-up reel at the constantly varying speeds required.

This clutch consists of take-up reel pulley (67), which is driven at a constant speed by the take-up belt (68). Next to pulley (67) is fiber clutch (69). Fiber clutch plate (69) slips on clutch felt (71), which is securely cemented to take-up clutch pulley (70) and tire (72) drive right-hand reel rest (18) at the varying speeds required as the tape builds up on the take-up reel.

The take-up torque in the Play position should be approximately three to four ounces, measured one inch from the center of the take-up reel. The clutch is adjusted by turning Nylock screw (63) until the correct pressure is obtained. If the correct pressure cannot be obtained, disassemble the clutch assembly and check for a worn, dirty, or oily clutch felt (71). If so, replace clutch felt (71) and thoroughly clean all associated parts.

Play-Record Head Alignment

The play-record heads must be lined up perfectly

with the tape. If not, low output, loss of high frequencies, or track overlap may occur. To adjust the play-record heads:

1. Head Height - The top of the play-record pole piece must be even with the top edge of the tape. To adjust the head height, loosen the two hex nuts on the side of the play-record head. After the proper head height has been obtained, tighten the two hex nuts.

2. Azimuth Alignment - To make this adjustment, obtain a standard alignment tape having a signal of at least 5,000 cps. Connect an AC voltmeter (0-5 volt range) to the Amp. jack. While playing back the alignment tape, pivot the play-record head by turning the three adjustment screws, until the maximum meter reading is obtained.

Erase Head Alignment

The erase head should be adjusted so that the pole piece is even with the top edge of the tape. To adjust, loosen the two hex nuts on the side of the erase head. After the proper head height is obtained, tighten the two hex nuts.

PARTS REPLACEMENT

To Replace The Flywheel and Capstan Assembly

1. Remove the two screws that mount pressure pad bracket (84). Remove pressure pad bracket (84).
2. Remove the screw from the left end of the head plate assembly (62).
3. Remove "E" ring (65) from the right end of the head plate assembly (62).
4. While leaving springs (60) and (61) attached, lift the head plate assembly (62) from the mounting stud.
5. Remove take-up belt (68).
6. Remove capstan drive belt (41).
7. Remove "E" ring (109), thrust bearing bolster (108), capstan thrust bearing (107), ball bearing (106) "E" ring (105) and nylon washer (104) from bottom of capstan shaft.
8. Lift the flywheel and capstan assembly straight up and off the mechanism plate.

9. To reassemble, reverse the foregoing procedure.

To Replace The Capstan Drive Belt

Capstan drive belt (41) can be removed and replaced without disassembling any of the drive mechanism except take-up belt (68), and fast traverse belt (32).

1. Remove take-up belt (68) from the flywheel by lifting the belt over the top of the capstan and slipping it under the head mounting bracket and guide assembly.

2. Remove fast traverse belt (32).

3. Remove capstan drive belt (41) from the flywheel, by lifting the belt over the top of the capstan and slipping it under the head mounting bracket and guide assembly.

Work the belt from between the forked end of speed change fork (52) and speed change detent (42). Lift the belt off the motor pulley. To replace the belt, reverse the foregoing procedure.

LUBRICATION

All moving parts in this recorder were permanently lubricated at the factory. If any parts are replaced, their bearing surfaces must be coated with a lightweight grease. Do not lubricate unless any parts are replaced.

The basic rule is - do not overlubricate. Grease

must be kept off all rubber idlers and belts, the rim of the flywheel, and any parts that might transfer grease to them. If any grease falls on these parts, wipe them with a soft cloth, and clean the belts and idlers with alcohol. Always wipe excess lubricant from lubricated parts.

CLEANING

The play-record and erase heads, capstan, and pressure roller (137) may accumulate tape coating oxide, which is worn off the tape as it passes these

parts. These parts should be cleaned occasionally with a soft cloth and alcohol.

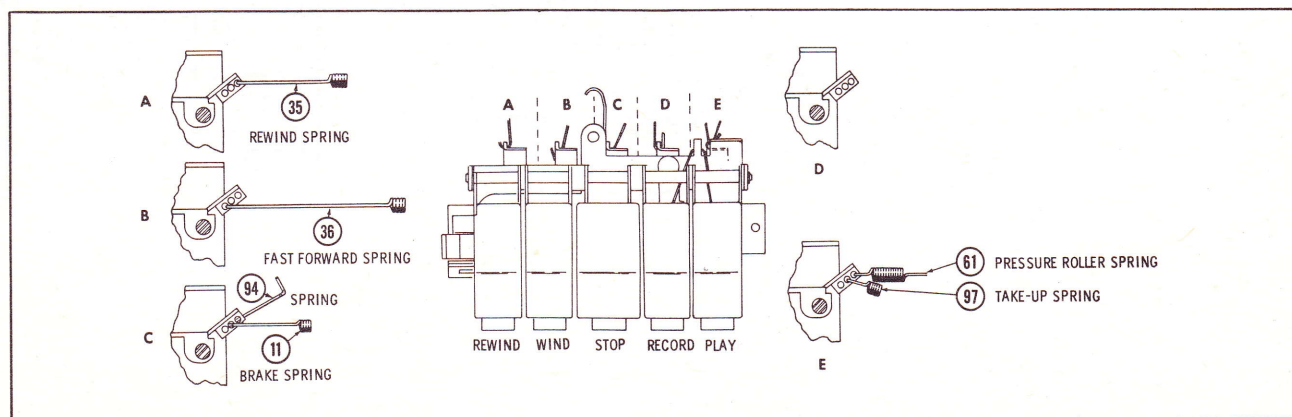


Figure 5. Push Button Spring Connections.

TROUBLE CHART

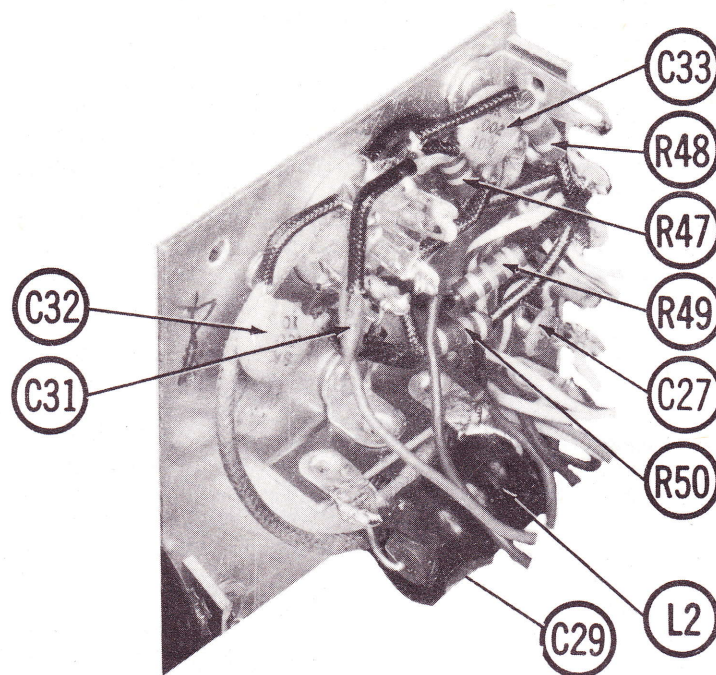
Symptom	Cause	Remedy
Motor and amplifier do not operate when switch is on.	<ol style="list-style-type: none"> 1. Damaged power cord. 2. Defective On - Off Switch 	<ol style="list-style-type: none"> 1. Repair or replace power cord. 2. Replace switch.
No sound; or sound is fuzzy, faint, or distorted.	<ol style="list-style-type: none"> 1. Over or under recorded tape. 2. Amplifier trouble. 3. Dirty play - record head. 	<ol style="list-style-type: none"> 1. See "Operating Instructions". 2. Check voltages and resistances as per schematic. 3. Clean head with alcohol and a soft cloth.
Incomplete erase.	<ol style="list-style-type: none"> 1. Dirty erase head. 2. Defective coil in erase head. 3. Misaligned erase head. 	<ol style="list-style-type: none"> 1. Clean head with alcohol and a soft cloth. 2. Check continuity. Replace erase head, if necessary. 3. See "Erase Head Alignment."
Does not record.	<ol style="list-style-type: none"> 1. Faulty microphone or cord. 2. Faulty input jack. 3. Faulty tube (s). 4. Dirty play - record head. 5. Open in play-record head. 	<ol style="list-style-type: none"> 1. Replace microphone or cord. 2. Repair or replace input jack. 3. Check tubes and replace defective ones. 4. Clean head with alcohol and soft cloth. 5. Check continuity. Replace play-record head, if necessary.
No playback; amp - lifier noise only.	<ol style="list-style-type: none"> 1. Open in play-record head. 2. Faulty tube V1. 	<ol style="list-style-type: none"> 1. Check continuity. Replace play-head if necessary. 2. Check tube V1. Replace, if necessary.
Poor high - frequency response.	<ol style="list-style-type: none"> 1. Dirty play - record heads. 2. Worn pressure pads. 3. Play-record heads not aligned properly. 	<ol style="list-style-type: none"> 1. Clean heads with alcohol and a soft cloth. 2. Replace pressure pads. 3. See "Play-Record Head Alignment".
No rewind.	<ol style="list-style-type: none"> 1. Rewind spring (35) broken or disconnected. 2. Fast traverse belt (32) broken. 	<ol style="list-style-type: none"> 1. Replace or reconnect rewind spring (35). 2. Replace fast traverse belt (32).
No wind (fast forward).	<ol style="list-style-type: none"> 1. Fast forward spring (36) broken or disconnected. 2. Fast traverse belt (32) broken. 	<ol style="list-style-type: none"> 1. Replace or reconnect fast forward spring (36). 2. Replace fast traverse belt (32).

AIRLINE
MODEL GPL-3822A

FOLDER 4

TROUBLE CHART Cont'd.

Symptom	Cause	Remedy
Brakes do not operate when unit is in Stop position.	1. Brake spring (11) broken or disconnected.	1. Replace or reconnect brake spring (11).
Speed selector not functioning properly.	1. Detent spring (43) broken or disconnected.	1. Replace or reconnect detent spring (43).
No tape take - up when Play button is depressed.	1. Take - up spring (97) broken or disconnected.	1. Replace or reconnect take-up spring (97).
	2. Take-up belt (68) broken.	2. Replace take-up belt (68).
	3. Take-up clutch improperly adjusted.	3. See "Take-up Adjustment".
No tape drive when Play button is depressed.	1. Capstan drive belt (41) broken.	1. Replace capstan drive belt (41).
	2. Pressure roller spring (61) broken or disconnected.	2. Replace or reconnect pressure roller spring (61).
Motor doesn't turn.	1. Capstan drive belt (41) jammed on motor pulley ass'y. (40).	1. Remove top (front) cover (see "To Remove Top (front) Cover" Page 5) and turn exposed fly-wheel to free capstan drive belt (41). If drive belt (41) cannot be freed in this manner, remove top plate (See "To Remove Top Plate" Page 5) and properly reposition drive belt (41) on motor pulley (40).
CAUTION: Jamming of the capstan drive belt (41) can only be caused by changing speeds before turning on the motor.		



V8 CIRCUIT COMPONENTS

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	619A42	"E" Ring, 1/4" Dia.
2	616A24	Washer, Clock Steel
3	964A388	Roller, Brake
4	619A62	Washer, Bowd
5	616A3169	Washer, Clock Steel
6	619A28	"E" Ring, 3/16" Dia.
7	616A24	Washer, Clock Steel
8	964B165	Brake Ass'y, Right & Left
9	831A5	Washer, Nylon
10	712A89	Spring, Brake Release
11	712A91	Spring, Brake
12	831A5	Washer, Nylon
13	611-40354	Screw, #4-40 x 3/16", Phillips BHMS
14	824C867	Reel Rest Ass'y, Rewind
15	854A908	Belt, Counter
16	831A7	Washer, Nylon
17	611-40354	Screw, #4-40 x 3/16", Phillips BHMS
18	824C999	Reel Rest Ass'y, Take-Up
19	831A7	Washer, Nylon
20	619A28	"E" Ring, 3/16" Dia.
21	616A24	Washer, Clock Steel
22*	964A130*	* Wheel, Rewind Idler
23	831A5	Washer, Nylon
24	619A28	"E" Ring, 3/16" Dia.
25	964A415	Link Ass'y, Idler
26	619A28	"E" Ring, 3/16" Dia.
27	831A5	Washer, Nylon

Ref. No.	Part No.	Description
28	964A850	Pulley Ass'y, Traverse
29	619A28	"E" Ring, 3/16" Dia.
30	831A1013	Washer, Nylon
31	964B851	Link Ass'y, Traverse
32	854A53	Belt, Fast Traverse
33	619A28	"E" Ring, 3/16" Dia.
34	964A912	Arm Ass'y, Rocker
35	712A90	Spring, Rewind
36	712A88	Spring, Fast Forward
37	619A28	"E" Ring, 3/16" Dia.
38	831A7	Washer, Nylon
39	964A427	Arm Ass'y, Drag
40	964A419	Pulley Ass'y, Motor
41	854A56	Belt, Capstan Drive
42	711A749	Detent, Speed Change
43	712A856	Spring, Detent
44	616A24	Washer, Clock Steel
45	619A28	"E" Washer, 3/16" Dia.
46	614-8114	Nut, #8-32 x 11/32" Hex
47	611-11254	Screw, #10-32 x 3/4", Phillips BHMS
48	616-1244	Washer, #10
49	855A16	Shock Mount, #2
50	711B855	Plate, Motor
51	824B21	Button, Speed Change
52	964A418	Fork Ass'y, Speed Change
53	611-60454	Screw, #6-32 x 1/4", Phillips BHMS

* WALSCO PART NO. 1483

MECHANICAL PARTS LIST (Cont'd)

Ref. No.	Part No.	Description
54	964B853	Bracket & Pin Ass'y, Speed Change
55	619A144	"C" Ring, 1/8" Dia.
56	534A26	Switch, Equalizer (Includes Screws)
57	611-60454	Screw, #6-32 x 1/4" Phillips BHMS
58	616A38	Washer, Clock Steel
59	831A9	Washer, Nylon
60	712A84	Spring, Pressure Roller Release
61	712A86	Spring, Pressure Roller
62	964B1433	Head Plate Ass'y
63	613-60574	Screw, #6-32 x 5/16", Hex Head, Nylock
64	831A8	Washer, Nylon
65	619A28	"E" Ring, 3/16" Dia.
66	811A41	Washer, Fiber
67	964A816	Pulley Ass'y, Take-Up
68	854A54	Belt, Take-Up
69	811A45	Plate, Clutch
70	964A391	Clutch Ass'y, Take-Up
71	871A67	Felt, Take-Up Clutch
72	854A52	Tire, Take-Up Clutch
73	831A7	Washer, Nylon
74	712A93	Spring, Take-Up Clutch
75	831A7	Washer, Nylon
76	611-60454	Screw, #6-32 x 1/4" Phillips BHMS
77	498B4-1	Counter
78	711A887	Bracket, Counter
79	611-50314	Screw, #5-40 x 3/16" RHMS
80	611-60454	Screw, #6-32 x 1/4" Phillips BHMS
81	711A1483	Stop
82	611-61854	Screw, #6-32 x 1 1/8" Phillips BHMS
83	734A951	Post, Tape Guide
84	964A1399	Bracket Ass'y, Pressure Pad
85	764A949	Spacer
86	712A22	Spring, Idler
87	619A144	"C" Ring, 1/8" Dia.
88	712A85	Spring, Pressure Pad
89	964A425	Pressure Plate & Pad Ass'y
90	964A424	Pressure Plate & Pad Ass'y (With Shield)
91	523C53	Switch, Cutoff
92	611-20754	Screw, #2-56 x 7/16" BHMS
93	711A1389	Plate, Nut
94	712-A-967	Spring
95	964B157	Flywheel Capstan Ass'y
96	831A7	Washer, Nylon
97	712A87	Spring, Take-Up
98	831A5	Washer, Nylon
99	619A28	"E" Ring, 3/16" Dia.
100	964A436	Bracket Ass'y, Take-Up
101	964B831	Journal Ass'y, Capstan

Ref. No.	Part No.	Description
102	617-8114	Lock Washer, #8
103	611-80450	Screw, #8-32 x 1/4" Phillips BHMS
104		Washer, Nylon
105	619A77	Ring, Retaining, 5/16" External
106	713A11	Ball, Steel, 3/16" Dia.
107	831A825	Bearing, Capstan Thrust
108	711A821	Bolster, Thrust Bearing
109	619A76	Ring, Retaining, 5/8" Internal
110	367B20	Motor
111	824A1048	Fan
112	964A1287	Switch & Bracket Ass'y, Muting
113	964A1289	Switch & Bracket Ass'y, Recording
114	611-60454	Screw, #6-32 x 1/4" Phillips BHMS
115	764A983	Spacer
116	764A968	Spacer
117	964A1170	Lever Arm & Push Button Ass'y
118	964A1169	Lever Arm & Push Button Ass'y
119	924A929	Buffer, Plunger
120	964B1005	Lever Interlock Ass'y
121	714A928	Pin, Key-Lever Pivot
122	714A584	Pin, Lever Pivot
123	619A144	"C" Ring, 1/8" Dia.
124	712A94	Spring
125	711A751	Lever Arm
126	712A40	Spring, Lever Locking
127	711A1364	Actuator, Muting Switch
128	964B841-2	Head & Bracket Ass'y, Record-Play
	983B6	Head, Record-Play
	731B4	Bracket, Record-Play Head
	734A35	Spacer, Head Mounting
	616A39	Washer
	624-20604	Nut, #2-56 Hex
129	611-20614	Screw, #2-56 x 3/8" RHMS
130	712A98	Spring, Head Mounting
131	611-41654	Screw, #4-40 x 1" BHMS
132		Washer, #4-40
133	734A36	Post, Tape Guide
134	731A55	Guide, Tape
135	619-14-8	"C" Ring, 1/4" Dia.
136	811A43	Washer, Fiber
137	964A394	Roller, Pressure
138	811A43	Washer, Fiber
139	964B1314	Head & Bracket Ass'y, Erase
	983B4	Head, Erase
	711A965	Bracket, Erase Head
	616A34	Washer, Clock Spring Steel
	624-20600	Nut, #2-56 Hex
140	611-40354	Screw, #4-40 x 3/16" BHMS
141		Screw, #4-40 x 3/16" Phillips BHMS
142	734A1429	Guide, Tape

AMP PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Power Cord	Use BELDEN No. 17106 (Plastic) or 17126 (Rubber) - 6 Ft. 17109 (Plastic) or 17129 (Rubber) - 9 Ft.
Power Cord (Interlock Type)	Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401 or 8421
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor-Unshielded) 8429 (Two Conductor-Shielded) 8419 (Three Conductor-Shielded)

TUBES

AMPEREX			GENERAL ELECTRIC			RCA			RAYTHEON			SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel 1 AF Amp.	6EU7	V5	Channel 2 AF Amp. - Cathode Follower	12AT7									
V2	Channel 1 AF Amp. - Cathode Follower	12AT7	V6	Channel 2 Output	6AQ5A (6AQ5)*									
V3	Channel 1 Output	6AQ5A (6AQ5)*	V7	Record Level Indicator	EMM801									
V4	Channel 2 AF Amp.	6EU7	V8	Bias Oscillator	12AU7A									

* Alternate

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.	RAYTHEON PART No.	
X1	89MA	454-21	1N1764	F6		
X2	89MA	454-21	1N1764	F6		
X3	89MA	454-21	1N1764	F6		
X4	89MA	454-21	1N1764	F6		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	30	400	285-90654	AFH3-39	C0300	XC3-40	FP376.7		TVL-3784.1
B	30	400							
C	30	400							
C2A	30	400	285-90654	AFH3-39	C0300	XC3-40	FP376.7		TVL-3784.1
B	30	400							
C	30	400							
C3	25	25	273-25694	PTT82	NLW25-25	MT1-11	TT25X25	MLV25-25	TE-1207
C4	25	25	273-25694	PTT82	NLW25-25	MT1-11	TT25X25	MLV25-25	TE-1207
C5	25	25	273-25694	PTT82	NLW25-25	MT1-11	TT25X25	MLV25-25	TE-1207
C6	25	25	273-25694	PTT82	NLW25-25	MT1-11	TT25X25	MLV25-25	TE-1207
C7	25	25	273-25694	PTT82	NLW25-25	MT1-11	TT25X25	MLV25-25	TE-1207
C8	25	25	273-25694	PTT82	NLW25-25	MT1-11	TT25X25	MLV25-25	TE-1207

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.	
C9	50 N750 10%		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47	
C10	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20	
C11	.005 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50	
C12	500 10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50	
C13	.01 10%		DI-10000		PM6S1	CCD-103	GEM-1611	10TS-S10	
C14	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68	
C15	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25	
C16	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C17	.003 600V		P688N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D30	
C18	50 N750 10%		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47	
C19	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20	
C20	.005 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50	
C21	500 10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50	
C22	.01 10%		DI-10000		PM6S1	CCD-103	GEM-1611	10TS-S10	
C23	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68	
C24	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25	
C25	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C26	.003 600V		P688N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D30	
C27	250 10%		DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25	
C28	50 N750 10%		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47	
C29	250 10%		DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25	
C30	50 N750 10%		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47	
C31	.0033 10%		DI-3300		PM6D33	CCD-332	JL-233	10TS-D33	
C32	.002 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20	
C33	.002 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20	
C34	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20	
C35	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C36	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20	
C37	.005 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50	

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone, 1	500K	124A50413-18	FI-41, R2-41	P-500K-Z, CP-013		
B	Volume, 1	500K			R-500K-Z, FR-102		
R2A	Tone, 2	500K	124A50413-18	FI-41, R2-41	P-500K-Z, CP-013		
B	Volume, 2	500K			R-500K-Z, FR-102		

AIRLINE
MODEL GPL-3822A

FOLDER 4

AMP PARTS LIST AND DESCRIPTION (CONTINUED)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R3	2200Ω	PW5-8	5W-SQ-8		R34	2700Ω	PW5-8	5W-SQ-8	
R4	220K				R35	1meg			
R5	1meg				R36	470Ω			
R6	220K				R37	39K			
R7	2700Ω				R38	150K			
R8	150K				R39	82K			
R9	3300Ω				R40	330K			
R10	1meg				R41	270K			
R11	100K				R42	220K			
R12	2700Ω				R43	1meg			
R13	1meg				R44	390Ω 1W			
R14	470Ω				R45	2200Ω			
R15	39K				R46	8Ω 5W			
R16	150K				R47	47K			
R17	82K				R48	470Ω			
R18	330K				R49	47K			
R19	270K				R50	470Ω			
R20	220K				R51	10K			
R21	1meg				R52	2.2meg			
R22	390Ω 1W				R53	390K			
R23	2200Ω				R54	270Ω			
R24	8Ω 5W				R55	10K			
R25	2200Ω				R56	2.2meg			
R26	220K				R57	390K			
R27	1meg				R58	15Ω 1W			
R28	220K				R59	15Ω 1W			
R29	2700Ω				R60	1000Ω 1W			
R30	150K				R61	3900Ω 1W			
R31	3300Ω				R62	5600Ω			
R32	1meg				R63	15K			
R33	100K				R64	15K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		AIRLINE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Bias Osc.	311A20					
L2	RF Choke (38MH)	312A50					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	AIRLINE PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
T1	117VAC ② .55A ①	480VCT ② .089A	6.3VAC ② 2.6A AC CT	352B49				① 1.2A with Motor

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	3700Ω	6-8Ω	342A30	A-2900	A-3850	24S05	S-63X	
T3	3700Ω	6-8Ω	342A30	A-2900	A-3850	24S05	S-63X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	4"x 10"	PM	6-8Ω	345B40	410A2Z8	
SP2	4"x 10"	PM	6-8Ω	345B40	410A2Z8	

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M1	Head	983B6	Play-Record
M2	Head	983B4	Erase
M3	Head	983B6	Ad-Asound
M4	Motor	367B20	
M5	Switch	539B16	Selector (Rotary Wafer Type)
M6	Switch	532A40-1	Ad-Asound (DPST Slide Type)
M7	Switch	532A40-1	Power On-Off (DPST Slide Type)
M8	Switch	532A40-1	Monitor, Ch. 1 (DPST Slide Type)
M9	Switch	532A40-1	Monitor, Ch. 2 (DPST Slide Type)
M10	Switch	534A26	Equalization (Spring Leaf Type)
M11	Switch	964A1289	Record (Spring Leaf Type)
M12	Switch	964A1287	Muting (Spring Leaf Type)
M13	Switch	523C53	Motor (Micro Type)
	Microphone	445B27-2	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	814A1420	Volume
Knob	814A1419	Tone
Knob	814A1418-1	Selector
Cover	964A1496-2	Head
Case	867DI388	Speaker Wing
Case	964-1497	Recorder